Week 10: Risk & Risk Risk Management –L1

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- A bit of a recap
- Some things about the last weeks
- Risk what it is and what to look out for
- Risk processes
- Risk management
- Risk Assessment & Control
- Crisis Management
- Summary

- Last week we covered
- Metrics, Cost and Estimation
- Function Point Analysis
- COCOMO – in our Workshops this week
- Agile PM, how it works and what is important, some estimation

"Without Risk there is no Reward"

- Risk Management most important for PM
- Risks –
  - may threaten the project/software
  - Need to be managed properly
- Risk Management – anticipate risks & take appropriate action

Ultimately we know that risk will bring about:

- *uncertainty* = the event that characterizes the risk may or may not happen
- *loss* = if risk becomes a reality unwanted consequences or losses will occur

- Yes !
- Things go wrong most of the times
- We need to be **prepared** (i.e. aware of what can go wrong)
- **Plan** for those events & **manage**
- *Why do SE projects have RISK?*

"First, Risk concerns future happenings.... This means risk involves change, such as in changes of mind, opinion, action or places... Risk involves choice, and the uncertainty that choice entails. Thus paradoxically, risk, like death and taxes, is one of the few certainties of life".
[Robert Charette, 89]
see his IEEE Spectum's RISK FACTOR blog
http://spectrum.ieee.org/blog/riskfactor

- RISK defined as
  - *"A possible future event that has negative results"*

Note that *Risk* is different to uncertainty
Can have uncertainty without risk, but not risk without uncertainty

- Proactive strategy starts early in PM
- Potential risks are identified,
- Assess their probability & impact
- Prioritize the risks
- Want to AVOID risks
- Need a contingency plan
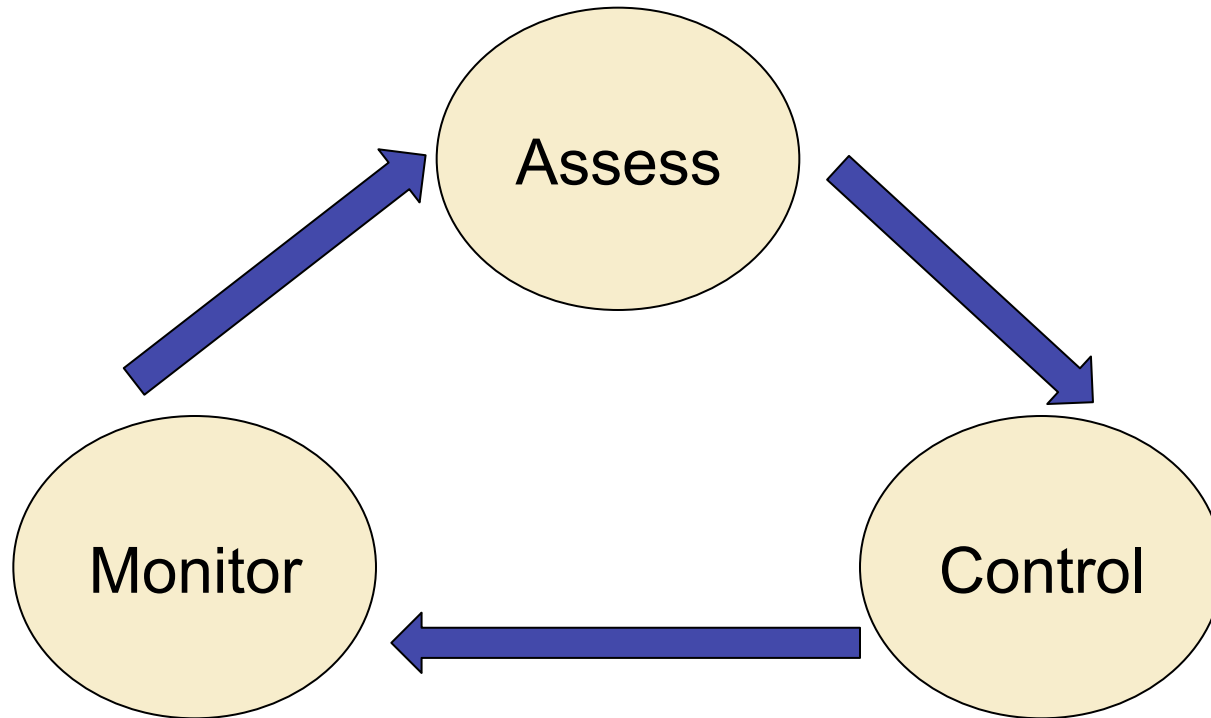
Three major categories:

1) *Project Risks*

2) *Product including technology risks*

3) *Business Risks*

1) The **probability** of the event occurring

2) The **impact** of the event on the project

3) The **degree of control** over the event & its outcome

- Risk exposure of an event is:

Risk Exposure =
probability X impact

(probability between 0 and 1)

- Measure impact with finite grade e.g.1.5

1=no impact, 2=minimal impact, 3=moderate impact, 4=severe impact, 5=catastrophic impact OR

Using monetary cost or time

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- Impact is quantifiable so risk exposure can be calculated

- E.g. risk probability = 0.2 and impact of "*yeah pretty bad*" → no exposure
risk probability = 0.15 and impact of "ooo …you don't want this to happen"

- Rate impact on quantifiable scale,

- First impact of 2 (minimal), 2nd impact 5

Then Risk exposure 1st = 0.2 X 2=0.4 and
2nd = 0.15 X 5 =0.75

So the second risk is greater than the first

A Risk free event is one in which the risk exposure is zero

Example - 1

1) If 3rd party application is developed in parallel with the system under development → risk of delivery later than planned, thereby delaying the entire system delivery

2) Once complete the 3rd party application may not be reliable enough to be used → new 3rd party application providing the functionality will need to be sourced or developed

3) 3rd party application may deliver behaviour that is inconsistent with expectations of the system developers i.e. a new 3rd party application providing the functionality need to be sourced or developed

Example - 2

EVENT	PROB. X	IMPACT =	RISK EXPOSURE
Late delivery	0.15	$10,000	$1500
Unreliable	0.05	$20,000	$1000
Inconsistent	0.2	$20,000	$4000

1. Clear that the final option (inconsistent behaviour) is the largest/highest risk,
2. Late delivery the second highest risk,
3. Unreliability the lowest risk

Risk Management

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- Reduce impact of risk through Risk Management
- Most important job of a PM

Two broad categories of RM:

1) Risk Assessment, and
2) Risk Control

- Reduce impact of risk through Risk Management
- Most important job of a PM

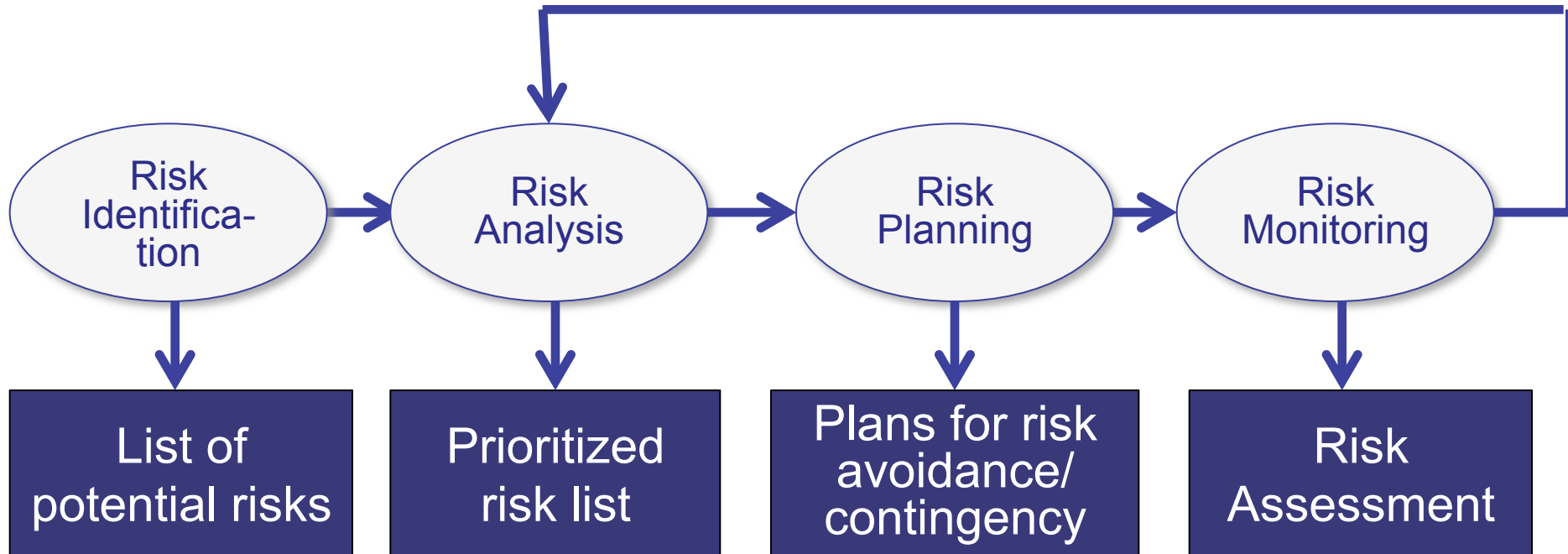Two broad categories of RM:

1) Risk Assessment, and
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Lets classify Risk

RISK	Description	Risk type
Staff turnover	Experienced staff leave the project before its finished	
Management Change	Change of company management with different priorities	
Hardware unavailability	Essential HW for the project not delivered on schedule	
Requirements change	A large number of changes than anticipated to Requirements	
Specification delays	Specification of essential interfaces are not available	
SW tool under-performance	Software tools that support the project do not perform as anticipated	
Technology change	Underlying technology on which the system is built is superseded by new technology	
Product competition	A competitive product is market before the system is completed	

Risk Management Process

Risk Identification → Risk Analysis → Risk Planning → Risk Monitoring

- List of potential risks
- Prioritized risk list
- Plans for risk avoidance/contingency
- Risk Assessment

Does AGILE development reduce risks?

- **Checklist of 6 types of risk**
1) Estimation risks
2) Organisational risks
3) People risks
4) Requirements risks
5) Technology risks
6) Tools risks

Estimation:

1) Time to develop software is underestimated

2) Rate of repairing defects is underestimated

3) <<Your guess>>

Organisational:

1) Organisation is restructured so different management are responsible for the project

2) Organisational has .... problems which causes ....

People:

     1) Impossible to recruit staff with the skills required

  2) <<your turn>>

Requirements:

     1) Changes to requirements that require major design reword is required

  2) <<your turn>>

Technology:

    1) the database cannot process as many transactions per second as expected

2) <<your turn>>

Tools:

    1) The code generated by the software code generation tools is inefficient

2) <<your turn>>

RISK MANAGEMENT PROCESS IN MORE DETAIL ON Friday…..